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2133	

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _05 November 2003_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1,3,4,6 and 11-30_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1,3,4,6 and 11-30_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _05 November 2003_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☒ Certified copies of the priority documents have been received in Application No. _09/348,958_.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _11/05/2003_.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: '44c' & '44d' in Figure 2D. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2.   Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. An interleaver inherently has a fixed rate.

Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The purpose of rate matching is to alter the data rate.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.   Claims 1, 3, 4, 6 and 11-30 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 6, 17 and 19 recite, "bit deletion/repetition rate", which is indefinite since it is not clear what is meant by "deletion/repetition". The examiner is assuming that the Applicant intended --bit deletion or repetition rate--.

Claims 1, 6, 17 and 19 recite, "bit deletion/repetition pattern", which is indefinite since it is not clear what is meant by "deletion/repetition". The examiner is assuming that the Applicant intended --bit deletion or repetition pattern--.

Claims 1, 6, 17 and 19 recite, "wherein a bit deletion/repetition pattern is selected to ensure that the deleted or repeated bits are not required to enable all bits from the digital input to be reconstructed". The limitation is indefinite since it is not tied to nor does it impose any structural limitation and only attempts to recite the purpose for bit

insertion or deletion in the negative. The Examiner asserts that any bit insertion device is inherently capable of producing sufficient redundant bits so that not all of them are required, hence it is unclear precisely what the Applicant is attempting to claim.

The term "offset with respect to" in claim 3 is a relative term, which renders the claim indefinite. The term "offset with respect to" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Examiner asserts that the term "offset with respect to" is ambiguous since it does not specify a relative location form which to determine the degree of offset.

Claim 11 recites the limitation "change bits" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. Claim 11 recites the limitation "change bits" in line 2. The omitted structural cooperative relationships are: the relationship between "change bits" and the limitations in claim 1.

Claim 12 recites the limitation, "said coding circuit has one of a fixed code rate and a predetermined number of rates for a variable data source." It is not clear how a coding circuit can have a fixed rate and a variable rate at the same time.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. Claim 12 recites the limitation, "said coding circuit has one of a fixed code rate and a predetermined number of rates for a variable data source." The omitted structural cooperative relationships are: the relationship between "said coding circuit", "a fixed code rate" and "a predetermined number of rates for a variable data source".

Claim 15 recites the limitation, "said coding circuit has one of a fixed code rate and a predetermined number of rates for a variable data source." It is not clear how a coding circuit can have a fixed rate and a variable rate at the same time.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. Claim 15 recites the limitation, "said coding circuit has one of a fixed code rate and a predetermined number of rates for a variable data source." The omitted structural cooperative relationships are: the relationship between "said coding circuit", "a fixed code rate" and "a predetermined number of rates for a variable data source".

Claim 18 recites the limitation "change bits" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. Claim 18 recites the limitation "change bits" in line 17. The omitted structural cooperative relationships are: the relationship between "change bits" and the limitations in claim 17.

The term "offset with respect to" in claim 18 is a relative term which renders the claim indefinite. The term "offset with respect to" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Examiner asserts that the term "offset with respect to" is ambiguous since it does not specify a relative location form which to determine the degree of offset in any column.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. Claim 20 recites the limitation "change bits" in line 1. The omitted structural

cooperative relationships are: the relationship between "change bits" and the limitations in claim 19.

Claim 21 recites the limitation "change bits" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. Claim 21 recites the limitation "change bits" in line 1. The omitted structural cooperative relationships are: the relationship between "change bits" and the limitations in claim 19.

The term "offset with respect to" in claim 21 is a relative term which renders the claim indefinite. The term "offset with respect to" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Examiner asserts that the term "offset with respect to" is ambiguous since it does not specify a relative location form which to determine the degree of offset in any column.

Claim 22 recites the limitation "change bits" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for

omitting essential structural cooperative relationships of elements, such omission

amounting to a gap between the necessary structural connections. See MPEP

§ 2172.01. Claim 22 recites the limitation "change bits" in line 1. The omitted structural

cooperative relationships are: the relationship between "change bits" and the limitations

in claim 19.

The term "offset with respect to" in claim 22 is a relative term which renders the claim

indefinite. The term "offset with respect to" is not defined by the claim, the specification

does not provide a standard for ascertaining the requisite degree, and one of ordinary

skill in the art would not be reasonably apprised of the scope of the invention. The

Examiner asserts that the term "offset with respect to" is ambiguous since it does not

specify a relative location form which to determine the degree of offset in any column.

Claim 23 recites the limitation "change bits" in line 1. There is insufficient antecedent

basis for this limitation in the claim.

Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for

omitting essential structural cooperative relationships of elements, such omission

amounting to a gap between the necessary structural connections. See MPEP

§ 2172.01. Claim 23 recites the limitation "change bits" in line 1. The omitted structural

cooperative relationships are: the relationship between "change bits" and the limitations

in claim 10.

The term "offset with respect to" in claim 23 is a relative term which renders the claim

indefinite. The term "offset with respect to" is not defined by the claim, the specification

does not provide a standard for ascertaining the requisite degree, and one of ordinary

skill in the art would not be reasonably apprised of the scope of the invention. The

Examiner asserts that the term "offset with respect to" is ambiguous since it does not

specify a relative location form which to determine the degree of offset in any column.

Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for

omitting essential structural cooperative relationships of elements, such omission

amounting to a gap between the necessary structural connections. See MPEP

§ 2172.01. Claim 26 recites the limitation "change bits" in line 1. The omitted structural

cooperative relationships are: the relationship between "change bits" and the limitations

in claim 25.

Claim 27 recites the limitation "change bits" in line 1. There is insufficient antecedent

basis for this limitation in the claim.

Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for

omitting essential structural cooperative relationships of elements, such omission

amounting to a gap between the necessary structural connections. See MPEP § 2172.01. Claim 27 recites the limitation "change bits" in line 1. The omitted structural cooperative relationships are: the relationship between "change bits" and the limitations in claim 25.

The term "offset with respect to" in claim 27 is a relative term which renders the claim indefinite. The term "offset with respect to" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Examiner asserts that the term "offset with respect to" is ambiguous since it does not specify a relative location form which to determine the degree of offset in any column.

Claim 28 recites the limitation "change bits" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. Claim 28 recites the limitation "change bits" in line 1. The omitted structural cooperative relationships are: the relationship between "change bits" and the limitations in claim 25.

The term "offset with respect to" in claim 28 is a relative term which renders the claim indefinite. The term "offset with respect to" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Examiner asserts that the term "offset with respect to" is ambiguous since it does not specify a relative location form which to determine the degree of offset in any column.

Claim 29 recites the limitation "change bits" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. Claim 29 recites the limitation "change bits" in line 1. The omitted structural cooperative relationships are: the relationship between "change bits" and the limitations in claim 25.

The term "offset with respect to" in claim 29 is a relative term which renders the claim indefinite. The term "offset with respect to" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The

Examiner asserts that the term "offset with respect to" is ambiguous since it does not specify a relative location form which to determine the degree of offset in any column.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 1, 3, 4, 6, 11-23 and 25-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Okumura et al. (Okumura, Y.; Adachi, F.; Variable rate transmission and blind rate detection for coherent DS-CDMA mobile radio, Electronics Letters, Volume: 33, Issue: 24, 20 Nov. 1997, Pages: 2026 - 2027) [hereafter referred to as Okumura].

35 U.S.C. 102(b) rejection of claims 1 and 25.

Okumura teaches a coding circuit configured to generate a coded output from a digital input and an interleaving circuit configured to generate a plurality of interleaved words (the *VRD transmission and blind rate detection scheme* section of Column 2 on page 2026 of Okumura teaches a sequence is convolutionally coded and then bit interleaved using a $2N_{slot}xK$ interleaver; Note: the rows in the $2N_{slot}xK$ interleaver are words; hence the Convolutinl coder & Interleaver in Figure 1 of Okumura is a coding circuit configured to generate a coded output from a digital input and an interleaving circuit configured to generate a plurality of interleaved words).

Okumura teaches a plurality of interleaved words generated by the action of an

interleaving circuit on a coded output generated by the action of a coding circuit on a

digital input (the *VRD transmission and blind rate detection scheme* section of Column 2

on page 2026 of Okumura teaches a sequence is convolutionally coded and then bit

interleaved using a $2N_{slot}xK$ interleaver; Note: the rows in the $2N_{slot}xK$ interleaver are

words), the coded output having a greater number of bits than the digital input

(convolutional codes inherently have a greater number of bits than the digital input since

the convolutional code includes redundant bits), the rate matching circuit having means

for adjusting the number of bits in the data block using a rate matching pattern to

provide data bits for transmission during respective frames of a transmission channel

(the first line in column 1 on page 2027 of Okumura teaches that the Repetition coder in

Figures 1-3 in Okumura is a rate matching circuit having means for adjusting the

number of bits in the data block using a rate matching pattern to provide data bits for

transmission during respective frames of a transmission channel), and means for

selecting the rate matching pattern depending on a bit deletion or repetition rate,

wherein a bit deletion or repetition pattern is selected to ensure that the deleted or

repeated bits are not required to enable all bits from the digital input to be reconstructed

(the Repetition coder in Figure 1 in Okumura is a means for selecting the rate matching

pattern depending on a repetition rate, wherein a repetition pattern is selected to ensure

that the repeated bits are not required to enable all bits from the digital input to be

reconstructed; Note: the repetition bits are inserted for the purposes of rate matching

and not for error correction so that the repeated bits are not necessarily required to

enable all bits from the digital input to be reconstructed).

35 U.S.C. 102(b) rejection of claims 3.

The first paragraph in column 1 on page 2027 of Okumura teaches the use of spreading

codes for distributing the repetition bits, which encompasses and is inherently capable

of producing any offset for position repetition bits in a transmitted sequence of digital

data. See In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971)

and In re Schreiber, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997).

35 U.S.C. 102(b) rejection of claim 4.

Figure 2 of Okumura teaches that the frame structure is determined by the slot length of

the interleaver.

35 U.S.C. 102(b) rejection of claim 6.

The Receiver in Figure 1 of Okumura is a decoding device for decoding a signal coded

by a coding device having a rate matching device for adjusting the number of bits in a

data block the data block comprising a plurality of interleaved words generated by the

action of an interleaving circuit on a coded output generated by the action of a coding

circuit on a digital input (the *VRD transmission and blind rate detection scheme* section

of Column 2 on page 2026 of Okumura teaches a sequence is convolutionally coded

and then bit interleaved using a $2N_{slot}xK$ interleaver; Note: the rows in the $2N_{slot}xK$

interleaver are words), the coded output having a greater number of bits than the digital input (convolutional codes inherently have a greater number of bits than the digital input since the convolutional code includes redundant bits), the rate matching circuit having means for adjusting the number of bits in the data block using a rate matching pattern to provide data bits for transmission during respective frames of a transmission channel (the first line in column 1 on page 2027 of Okumura teaches that the Repetition coder in Figures 1-3 in Okumura is a rate matching circuit having means for adjusting the number of bits in the data block using a rate matching pattern to provide data bits for transmission during respective frames of a transmission channel), and means for selecting the rate matching pattern depending on a bit deletion or repetition rate, wherein a bit deletion or repetition pattern is selected to ensure that the deleted or repeated bits are not required to enable all bits from the digital input to be reconstructed (the Repetition coder in Figure 1 in Okumura is a means for selecting the rate matching pattern depending on a repetition rate, wherein a repetition pattern is selected to ensure that the repeated bits are not required to enable all bits from the digital input to be reconstructed; Note: the repetition bits are inserted for the purposes of rate matching and not for error correction so that the repeated bits are not necessarily required to enable all bits from the digital input to be reconstructed).

35 U.S.C. 102(b) rejection of claim 11.

(1 −1) is a 1x2 matrix and is a building block for any repetition pattern for the transmitter in Figure 1 of Okumura. Note: any repletion pattern built from the (1 −1) is a 1x2 matrix building block can inherently be represented in matrix form.

35 U.S.C. 102(b) rejection of claim 12.

The convolutional encoder in Okumura encompasses fixed rate encoders.

35 U.S.C. 102(b) rejection of claims 13 and 14.

The Interelaver in Okumura is not adaptive and any interleaver inherently has a constant bit rate.

35 U.S.C. 102(b) rejection of claim 15.

The convolutional encoder in Okumura encompasses fixed rate encoders. The Interelaver in Okumura is not adaptive and any interleaver inherently has a constant bit rate.

35 U.S.C. 102(b) rejection of claim 16.

The purpose of rate matching is to alter a data rate.

35 U.S.C. 102(b) rejection of claims 17 and 19.

The Receiver in Figure 1 of Okumura is a decoding device for decoding a signal coded by a coding device having a rate matching device for adjusting the number of bits in a

data block the data block comprising a plurality of interleaved words generated by the

action of an interleaving circuit on a coded output generated by the action of a coding

circuit on a digital input (the *VRD transmission and blind rate detection scheme* section

of Column 2 on page 2026 of Okumura teaches a sequence is convolutionally coded

and then bit interleaved using a $2N_{slot}xK$ interleaver; Note: the rows in the $2N_{slot}xK$

interleaver are words), the coded output having a greater number of bits than the digital

input (convolutional codes inherently have a greater number of bits than the digital input

since the convolutional code includes redundant bits), the rate matching circuit having

means for adjusting the number of bits in the data block using a rate matching pattern to

provide data bits for transmission during respective frames of a transmission channel

(the first line in column 1 on page 2027 of Okumura teaches that the Repetition coder in

Figures 1-3 in Okumura is a rate matching circuit having means for adjusting the

number of bits in the data block using a rate matching pattern to provide data bits for

transmission during respective frames of a transmission channel), and means for

selecting the rate matching pattern depending on a bit deletion or repetition rate,

wherein a bit deletion or repetition pattern is selected to ensure that the deleted or

repeated bits are not required to enable all bits from the digital input to be reconstructed

(the Repetition coder in Figure 1 in Okumura is a means for selecting the rate matching

pattern depending on a repetition rate, wherein a repetition pattern is selected to ensure

that the repeated bits are not required to enable all bits from the digital input to be

reconstructed; Note: the repetition bits are inserted for the purposes of rate matching

and not for error correction so that the repeated bits are not necessarily required to enable all bits from the digital input to be reconstructed).

In addition, Okumura teaches a data reconstruction circuit (the receiver in Figure 1 of Okumura is a data reconstruction circuit) having means for adjusting the number of bits in said received data block to reverse action of said rate matching circuit, thereby reconstructing said interleaved words (thee Repetition Decoder in Figure 1 of Okumura is a means for adjusting the number of bits in said received data block to reverse action of said rate patching circuit, thereby reconstructing said interleaved words); a de-interleaving circuit having means for generating each of said interleaved words and a channel decoder which receives said interleaved words provided by said de-interleaving circuit (the De-Interleaver & Viterbi Decoder in Figure 1 of Okumura is a de-interleaving circuit having means for generating each of said interleaved words and a channel decoder which receives said interleaved words provided by said de-interleaving circuit).

35 U.S.C. 102(b) rejection of claim 18.

The first paragraph in column 1 on page 2027 of Okumura teaches the use of spreading codes for distributing the repetition bits, which encompasses and is inherently capable of producing any offset for position repetition bits in a transmitted sequence of digital data. See In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971) and In re Schreiber, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997).

35 U.S.C. 102(b) rejection of claims 20 and 26.

The first paragraph in column 1 on page 2027 of Okumura teaches the use of spreading

codes for distributing the repetition bits, which encompasses and is inherently capable

of producing any offset for position repetition bits in a transmitted sequence of digital

data. See In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971)

and In re Schreiber, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997).

35 U.S.C. 102(b) rejection of claims 21-23 and 27-29.

The first paragraph in column 1 on page 2027 of Okumura teaches the use of spreading

codes for distributing the repetition bits, which encompasses and is inherently capable

of producing any offset for position repetition bits in a transmitted sequence of digital

data. See In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971)

and In re Schreiber, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.

     2.   Ascertaining the differences between the prior art and the claims at issue.
     3.   Resolving the level of ordinary skill in the pertinent art.
     4.   Considering objective evidence present in the application indicating
            obviousness or nonobviousness.

5.   Claims 24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Okumura et al. (Okumura, Y.; Adachi, F.; Variable rate transmission and blind rate

detection for coherent DS-CDMA mobile radio, Electronics Letters, Volume: 33, Issue:

24, 20 Nov. 1997, Pages: 2026 - 2027) [hereafter referred to as Okumura].

35 U.S.C. 103(a) rejection of claims 24 and 30.

Okumura substantially teaches the claimed invention described in claims 1-20 (as

rejected above).

However Okumura does not explicitly teach the specific use of filling a matrix row-by-

row and then reading column-by-column.

The Examiner asserts that Okumura teaches a matrix interleaver but does not teach the

interleaving algorithm. The Examiner asserts that it would be obvious to use one of the

most commonly known algorithms in the art for interleaving data based on the simplicity

of the algorithm and ease of implementation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the teachings of Okumura by including use of filling a

matrix row-by-row and then reading column-by-column. This modification would have

been obvious to one of ordinary skill in the art, at the time the invention was made,

because one of ordinary skill in the art would have recognized that use of filling a matrix

row-by-row and then reading column-by-column would have provided the opportunity to

use one of the most commonly known algorithms in the art for interleaving data based

on the simplicity of the algorithm and ease of implementation.

Double Patenting

        The nonstatutory double patenting rejection is based on a judicially created
doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the
unjustified or improper timewise extension of the "right to exclude" granted by a patent
and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11
F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225
USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA
1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*,
418 F.2d 528, 163 USPQ 644 (CCPA 1969).
        A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be
used to overcome an actual or provisional rejection based on a nonstatutory double
patenting ground provided the conflicting application or patent is shown to be commonly
owned with this application. See 37 CFR 1.130(b).
        Effective January 1, 1994, a registered attorney or agent of record may sign a
terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with
37 CFR 3.73(b).

6.   Claims 1, 3, 4, 6 and 11-30 rejected under the judicially created doctrine of

double patenting over claims 1-19 of U. S. Patent No. US 6671851 B1 since the claims,

if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and

is covered by the patent since the patent and the application are claiming common

subject matter, as follows: Claim 1 of U. S. Patent No. US 6671851 B1 recites "A rate

matching circuit for adjusting the number of bits in a data block, the data block

comprising a plurality of interleaved words generated by the action of an interleaving

circuit on a coded output generated by the action of a coding circuit on a digital input,

the coded output having a greater number of bits than the digital input, the rate

matching circuit having means for adjusting the number of bits in the data block using a

rate matching pattern to provide data bits for transmission during respective frames of a

transmission channel, and means for selecting the rate matching pattern as a function

of an interleaving depth, a bit deletion/repetition rate and said digital input, wherein a bit

deletion/repetition pattern is selected to ensure that the deleted or repeated bits are not

required to enable all bits from the digital input to be reconstructed.".

Claim 1 of the current application adds the language, "selecting the rate matching

pattern **depending on a bit deletion/repetition rate**" [only the highlighted language is

added]. Since a rate matching pattern inherently depends bit deletion/repetition rate,

the added language does not further limit claim 1, hence claim 1 of the current

application is an inherently obvious subset of the limitations in claim 1 of U. S. Patent

No. US 6671851 B1.

Furthermore, there is no apparent reason why applicant was prevented from presenting

claims corresponding to those of the instant application during prosecution of the

application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158

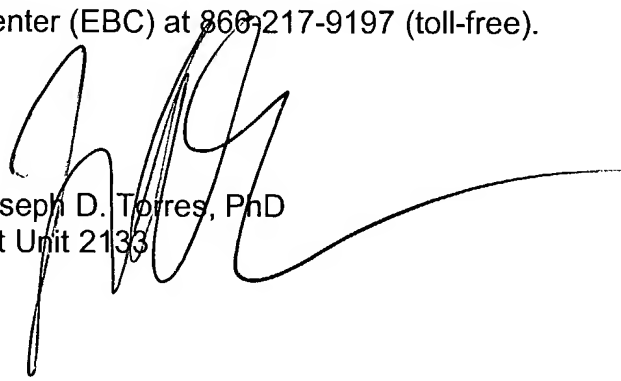USPQ 210 (CCPA 1968). See also MPEP § 804.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Roobol; Christiaan et al. (US 6307867 B1) teaches a

transmission rate specified in a transmission format along with other parameters such

as coding information, interleaving information, and repetition/puncturing schemes for

rate matching.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Joseph D. Torres whose telephone number is (703)

308-7066. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

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Art Unit 2133